TOTOGATIC RIVER WILDLIFE AREA

DRAFT MASTER PLAN AND ENVIRONMENTAL ANALYSIS

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Cover photos: Upper left, Totogatic River; upper right, view of property from the viewing area off Highway 27; lower left, view of alder and emergent vegetation on the property; lower right, Marsh Marigold native wildflower. All photos Shelley Warwick 2016, 2017.

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LIST OF ACRONYMS

ADA	Americans with Disabilities Act
BMPs	Best Management Practices
CTH	County Highway
EL	Ecological Landscape
HMA	Habitat Management Area
RPA	Regional and Property Analysis
SCORP	Statewide Comprehensive Outdoor Recreation Plan
SGCN	Species of Greatest Conservation Need
WA	Wildlife Area
WDNR	Wisconsin Department of Natural Resources
WisFIRS	Wisconsin Forest Inventory and Reporting System
TRWA	Totogatic River Wildlife Area

CHAPTER ONE: INTRODUCTION AND OVERVIEW

Property Overview and Significance

The Totogatic River Wildlife Area is a 2,658-acre property located approximately 10 miles northwest of the city of Hayward, Wisconsin in Sawyer and Washburn counties (Map A). It is in a regional landscape of extensive forest cover with an abundance of diverse wetlands, scenic and wild rivers and a variety of lakes/impoundments with abundant public land and opportunities for outdoor recreation. Of particular note, the Totogatic River (outside of the wildlife area) is a designated outstanding water resource and state wild river upstream of the Nelson Lake dam and 500 feet downstream of the Totogatic dam.

The wildlife area is mostly forested uplands and marsh with lesser amounts of open water. The flowage, formed by the Wozny Road dam, supports about 1,150 acres of wetland and up to 400 acres of open water; but only about 100 to 200 acres are present during the growing season. The wetlands are dominated by dense cattails. Open water covers about 10% (276 acres) of the property. Combined, these habitats host a variety of game and common wildlife species and while waterfowl nesting is limited, the open water areas are used extensively in the spring and fall by migrating waterfowl. The upland habitat comprised of a mix of northern hardwoods and aspen with wildlife openings, provides habitat for white tailed deer and wild turkey.

Game fish in the flowage include a variety of panfish, northern pike, and largemouth bass. However, shallow water conditions limit the fishery; the flowage has experienced winter fish kills and low dissolved oxygen levels. The flowage is maintained by the aging, 64-year-old Wozny Road dam. The dam is in a deteriorated condition and must be repaired, rebuilt, or removed.

While the wildlife area is lies in a region of abundant public recreation land and waters, most of the lakes in the area have developed shores; the wildlife area's natural, undeveloped shoreline aesthetics are a special attraction. The wildlife area offers a variety of nature-based outdoor activities particularly visitors come to fish, hunt, trap, watch birds and wildlife, hike, and paddle the quiet waters of the flowage.

Property Purpose, Management Authority, and Need for Action

Property master planning is a process that determines how a property will be managed and developed. The development of master plans is governed by NR 44, Wisconsin Administrative Code, the master plan rule. This rule defines master planning, sets forth its purposes, and specifies the general planning process and content of a master plan. This rule also establishes a uniform land management classification system to be applied in the master plan. By administrative code, the master plan is the controlling authority for all actions and uses on a property. The scope of management and use of state property depends upon its official designation.

Wildlife Areas (WAs) are acquired and managed under the authority of Section 23.09(2) (d) 3, Wisconsin Statutes, and Chapter NR 1.51, Wisconsin Administrative Code. They are designated to provide places where people can hunt, trap, and fish. WAs also are open for traditional outdoor uses of walking, skiing, snow shoeing, nature study, berry picking, and other low-impact recreational activities. As directed by

NR 1.51 and NR 1.61, other recreational uses may be allowed on WAs by the Master Plan if those uses do not detract from the primary purpose of these properties.

The Totogatic River Wildlife Area (TRWA) project was established in the late 1940s and early 1950s for waterfowl habitat. The NRB has determined that a property master plan is required for most department managed properties. The TRWA is among those properties where a plan is required. The current master plan is over 36 years old and is in need of revision, as conditions on the property have changed over time and the current plan does not meet the newer NR 44 requirements for property master plans.

Plan Overview

The Draft Master Plan describes how this property will be managed, used, and developed. The plan focuses on maintenance and enhancement of forests and wetlands for an array of associated wildlife species through habitat management, and protection riparian wetland communities. Recreation management emphasizes the traditional outdoor activities of hunting and trapping, as well as other nature-based recreational pursuits such as fishing and wildlife viewing.

The plan also recognizes the importance of working with external partners, including other government agencies (local, state, and federal) and nonprofit conservation groups, to achieve common goals.

Habitat and Wildlife

The plan emphasizes habitat management of northern hardwoods which includes stands of aspen, basswood, ash, red oak and red maple. There are also small areas of swamp conifer and swamp hardwoods present. These habitats support a wide variety of game and non-game wildlife species, including ruffed grouse, American woodcock, wild turkey, white-tailed deer, furbearers, black bear, gray wolf, and a variety of songbirds. Recommendations for the management of water resources and wetlands will support a healthy aquatic ecosystem converting from a flowage/lake environment reverting to a riverine environment with the removal of the dam on the property.

Recreation

The Totogatic River Wildlife Area is in a region of abundant public recreation land and waterbodies. With most of the lakes in the area having developed shores, the wildlife area's natural, undeveloped aesthetics are a special attraction.

The wildlife area offers a variety of nature-based outdoor activities particularly visitors come to fish, hunt, trap, watch birds and wildlife, hike, and paddle the quiet waters on the property. The Totogatic River is popular with local anglers. Hunting and fishing are the primary recreational use of the TRWA, and the focus of recreation management in the draft Master Plan. Uses of the property with the dam removed will continue to be similar with wildlife habitat management for hunting, fishing and trapping opportunities.

Tribal Resources in Ceded Territory

The Totogatic River Wildlife Area lies within the Ceded Territory of the state. Native American tribes are independent, sovereign nations, as they were prior to the arrival of Europeans in

Figure 1: Map of the ceded territory in Wisconsin, WDNR 2017.

North America. The Ojibwa Tribes ceded lands in the northern one-third of Wisconsin to the United States government in the Treaties of 1837 and 1842. In those Treaties, they reserved their rights to hunt, trap, fish and gather within various publicly-owned lands. Treaty rights are currently being exercised and implemented by the Ojibwa Tribes within the Ceded Territory.

Property Boundary Changes

No acquisition increases are recommended as a part of this plan. One housekeeping property boundary change is recommended; that is to expand the project boundary by 40 acres to include an adjacent department owned parcel that has long been managed as part of the wildlife area. See Map B-9.

CHAPTER TWO: MANAGEMENT, DEVELOPMENT, AND USE

Introduction

This chapter details the management, development and use of the TRWA needed to achieve the property's long-range vision and goals. The property is planned and managed to optimize its own inherent capabilities, yet at the same time to realize its importance as a component of the larger landscape mosaic of public and private properties. Chapter Two is organized into three main parts: the **Introduction** contains an overview of the benefits of public land protection and the Vision and Goals that guide the overall project; **Section One** contains a property description as well as both general and specific management objectives and prescriptions for the TRWA; and **Section Two** describes general property administration and management policies and provisions that apply to all state managed lands.

Vision and Goals

The Totogatic River Wildlife Area will provide high-quality habitats for diverse wildlife and fish species and high-quality outdoor, nature-based recreational opportunities in lightly developed settings for current and future users. These opportunities will be provided within a matrix of wetland and upland communities, including emergent marshes, rivers and streams, and upland hardwood forests. Natural communities will be managed sustainably for ecological benefit and user enjoyment in a manner consistent with their statutory designations and ecological capabilities. Management of these properties will be directed at maintaining the ecological integrity of the diverse ecosystems.

We will accomplish this vision by working on 5 major goals:

Goal 1: Provide recreational opportunities for hunting, fishing, trapping, paddling, bird watching, wildlife viewing, nature study or enjoyment, and other compatible nature-based outdoor pursuits

Goal 2: Promote quality habitat for game and non-game species.

Goal 3: Maintain and enhance connectivity between terrestrial and aquatic communities and habitats.

Goal 4: Ensure quality angling opportunities exist.

Goal 5: Maintain and enhance, where possible, wild rice habitat.

CHAPTER TWO: Section One

Land Management Classification

All of the TRWA is classified as a Habitat Management Area. A Habitat Management Area is managed to provide or enhance habitat, whether upland, wetland or aquatic, to support specific species of plants and animals. A management classification generally describes the primary management objective for a property or areas within a property. The land management classification system is further defined in Chapter NR 44.06 and 44.07 of the Wisconsin Administrative Code.

Resource Management

General Habitat Management Objectives

- Maintain and enhance the quality of forest habitats with an emphasis on uneven aged northern hardwood management.
- Provide a diversity of size and age classes and structural features that enhance wildlife habitat value across the forest types on the property.
- Promote forest health by managing forest types to discourage invasion by, and reduce loss from, invasive species and forest diseases such as oak wilt, gyspy moth, forest tent caterpillar, two-lined chestnut borer, and annosum root-rot.

General Prescriptions

- Retain snags and course woody habitat whenever their retention does not conflict with other management objectives or pose a danger to loggers.
- Leave long-lived reserve trees as individuals or in groups to provide timber, wildlife, and aesthetic value whenever their retention does not conflict with regeneration and other forest management objectives.
- Require loggers to utilize established best management practices for all aspects of conducting timber harvest and removal, and require logging equipment to be cleaned prior to entry to and exit of state lands to prevent the spread of invasive plants.
- Monitor and control populations of invasive species and eradicate them where feasible. Control invasive species using appropriate techniques including, but not limited to, prescribed fire, mechanical (e.g., mowing, cutting) control, and chemical (herbicide

Management Objectives and Prescriptions by Habitat Type

Upland Forested Habitats

Northern Hardwoods

The existing 545 acres of Northern Hardwood upland forested areas cover 21 percent of the Totogatic River Wildlife Area and are comprised of an even distribution of younger regenerated sugar maple, basswood, aspen, white and yellow birch. The northern hardwood areas of the property are young enough that they are functioning from a habitat standpoint similar to an uneven-aged aspen stand. This upland forest habitat is diverse and healthy with little woody invasives like honeysuckle or buckthorn. Game species utilizing this habitat include black bear, grouse, deer, turkey, beaver, otter, muskrat, and

woodcock. Osprey, bald eagle, songbirds and small mammals like porcupine and opossum also use these forested areas.

Objectives

- Maintain the existing stands of diverse uneven aged northern hardwoods (generally ratio of 64% overall upland forested habitat on the property).
- Provide a variety of age classes and stand sizes across the landscape for wildlife habitat benefits, ecological diversity, and aesthetic value.
- Encourage the expansion of the aspen percentages (up to 5%) within the northern hardwoods stands.
- Continue managing upland forest for current wildlife types.
- Maintain wildlife opening areas.
- Increase suitable habitat for woodcock.

Prescriptions

- Use timber sales as a management tool for forest management. Harvest portions of larger stands at staggered intervals of 40-65 years of age.
- Evaluate hardwood stands that contain a remnant aspen component and determine if they may be converted to aspen/birch. Convert to aspen where the potential exists.
- Whenever possible, leave cavity trees (living and dead).
- Plant and maintain grasses and Forbes in wildlife openings. Mow and or burn on a 3-5-year rotation to control potential invasives and woody species encroachment.

Aspen-Dominated Mixed Forest

Aspen dominated forest covers 322 acres (12 percent) of Totogatic River Wildlife Area. Aspen forests are a premier wildlife cover type in the uplands. Young aspen forests provide feeding and hiding cover for a host of game species and non-game species. New research is indicating that young aspen stands, particularly those containing large scattered oaks, may provide important breeding habitat for golden-winged warblers, especially if adjacent to mature forest for the post-fledging period. White pine, another component of these stands, can increase once sunlight reaches the young trees in the understory. Trees retained may wind throw and become coarse woody debris on the forest floor. Creating and maintaining greater age class diversity of aspen on the property is a major goal. This will enhance the opportunity to accommodate a variety of wildlife species.

Objectives

- Maintain current extent of uneven aged aspen stand coverage; and create and maintain a greater age class diversity of aspen on the property overall.
- Increase suitable habitat for woodcock.

Prescriptions

- Regenerate aspen primarily through coppice (i.e., root sprouts) cutting with a management emphasis on its habitat value for ruffed grouse and woodcock populations.
- Where feasible and appropriate, regenerate aspen within Riparian Management Zones (RMZs) to provide critical habitat for woodcock. This prescription will be implemented where the practice will not compromise important ecological characteristics and water quality that BMPs are intended to protect.

- Provide a variety of age classes and stand sizes across the landscape for wildlife habitat benefits, ecological diversity, and aesthetic value, harvest smaller blocks of aspen cuts to diversify habitat. Use green tree practices where appropriate.
- Retain individual longer-lived species such as oak, white pine, hemlock, and red pine, as well as older individual aspen. These reserve trees can improve stand structure, diversity, wildlife habitat, and aesthetic beauty as well as promoting wildlife travel corridors. To maintain vigorous aspen growth, 20% crown closure is typically ideal; however, crown closure may be slightly higher or lower depending on site conditions.
- Whenever possible, leave cavity trees (living and dead).

Forest management activities follow the Wisconsin Forest Management Guidelines (PUB-FR-226-2011) as well as the WDNR Silvaculture and Forest Aesthetics Handbook (2431.5), the Public Forest Lands Handbook (2460.5), the Timber Sale Handbook (2461), and the Forestry Best Management Practices (BMPs) for water

Wetland Habitats

Forested Wetlands

Forested wetland areas on the property contain stands of swamp hardwood and swamp conifer. Swamp hardwood stands are dominated by black ash and make up most the forested wetland habitat, with 230 acres (9%) of the property cover. The extent of swamp conifer, which includes black spruce, tamarack, white cedar, and associated species, are very limited, being only 29 acres (1%). Changes may occur in the overall acreage or lowland forest following extended drawdowns and removal of the dam.

Objectives

- Maintain existing acreage of uneven aged lowland forested wetlands.
- Control invasives species (as practical), if an infestation occurs.

Prescriptions

- Management activities will be passive and minimal within wetlands. Utilize timber sales to manage uneven aged lowland forested wetland species. Access for timber management will be during frozen or very dry conditions to minimize wetland impacts. Harvesting techniques and equipment should minimize rutting and other negative impact to the wetland hydrology.
- Productive stands of tamarack and black spruce will be regenerated using strip clear-cut and/or seed tree method following guidelines in the Silvaculture Handbook.
- Retain all white cedar. Exceptions to this will be where management opportunities provide for encouraging regeneration of this species. Cedar trees damaged by wind, ice, fire, insects and disease will not be salvaged unless there is a public safety issue with not doing so.

Alder (Shrub) Wetlands

Alder (speckled alder or “tag alder”) is small but important habitat type on this property. It typically occurs along the margins between forest and riparian zones, lakes, wetlands, or muskegs. These alder stands traditionally have not been managed and have subsequently matured. When alder stands become old and decadent, stem density decreases substantially and understories are overtaken by grasses and other ground covers. Regenerating alder by cutting or shearing will create a diversity of age class benefits to games species such as the American woodcock, ruffed grouse, cotton-tailed rabbits, and snowshoe hares as well as a variety of songbirds including the golden-winged warbler. Alder is not considered an important browse species for deer, but provides excellent cover for travel, bedding,

escape, and fawning. For all these reasons, creating and maintaining greater age class diversity of alder on the property is an important goal. Like aspen, alder sprouts vigorously when cut, although most alder sprouting is directly from the stump, not from roots. Alder will grow naturally from seed.

Objectives

- Maximize age class diversity of brush habitat for wildlife especially grouse and woodcock.
- Control invasive species (as practical), if an infestation occurs.

Prescriptions

- Regenerate alder by cutting, mowing, or shearing with a management emphasis on its habitat value for woodcock, golden-winged warblers, and a variety of other species dependent on early–successional habitat.
- Harvest portions of larger stands of mature decadent alder at staggered intervals. To determine the suitability of the age, stand of the alder, observe growth form of alder stems: when old, alder frequently grows horizontally instead of vertically. Alder stands with horizontal growth are good candidates for regeneration.
- Where suitable and appropriate, cut strips of alder that are 50-100 feet wide through the alder stand. Position strips so that an adjacent strip can be cut every 5 years, thus ensuring that all alder strips will be revisited once every 20 years. As with aspen, the percentage of the area cut is accelerated in decadent stands with substantial horizontal growth.
- Conduct any work when the ground is dry or frozen to minimize potential impacts to wetlands.
- Alder stands with standing water, saturated soil throughout the year, or heavy sedge growth are likely too wet to provide benefits for target species under normal circumstances and are not suitable for this kind of management work.
- Where alder stands are interspersed with trees or other species, retain widely spaced over story trees with a DBH >9 inches, particularly deciduous species, as this structure is beneficial for the golden-winged warbler.
- Utilize manual cutting and/or herbicide treatments for invasive vegetation species management. If in wetland, ensure proper herbicide is labeled for partial aquatic environment.

Emergent Wetlands

Currently there are about 1,000 acres of emergent wetlands making up about 41 percent of the property's cover. However, most this acreage is dominated by monotypic narrow-leaved cattail *(Typha lataifolia)* with limited wildlife habitat values. To a small degree, waterfowl may use these emergent wetland areas for cover, breeding and as a food source.

Objectives

- Manage for high quality open water, emergent wetland habitats and wet meadow wetlands.
- Control invasive plants (as practical) if an infestation occurs. Monitor and manage invasive species colonization during the drawdown, dam removal and mudflat revegetation timeframe.
- Ensure native species revegetation in the exposed mudflat areas from the drawdown and dam removal.

Prescriptions

- Utilize manual cutting and/or herbicide treatments for invasive vegetation species management. If in wetland, ensure proper herbicide is labeled for partial aquatic environment.
- Utilize vegetation management techniques and planting of native as resources allow to reestablish a diverse wetland community as much as feasible.

Open Water

Currently a state-owned dam exists on the Totogatic River at Wozny Road on the TRWA property. This structure impounds approximately 100-400 acres of water. Water levels on the flowage are shallow averaging 3-feet deep with some 10-feet deep areas near the dam. Wildlife that uses the open water flowage habitat are primarily geese, swan, duck (for migration habitat), songbirds, game and non-game fish. Formal safety inspections in 2010 and 2012 alerted the department to the deteriorating conditions of the dam. Inspection reports note that repair, replacement or removal of the dam is recommended to occur to eliminate the public safety risk with a dam failure. Taking into consideration short-term and long term costs, funds available, potential return on the dollar and environmental impacts, this plan includes the recommendation to complete a drawdown of the flowage and eventually to remove the dam.

Objectives

- Manage the portion of the Totogatic River that flows through the TRWA property for optimal water quality and as a natural riverine habitat.
- Manage the river ecosystem for the downstream Wild River designation and a designated Outstanding Water Resource.
- Minimize potential sediment movement downstream during the drawdown and dam removal.
- Drawdown the impoundment in a staged, slow manner to limit downstream movement of sediment as much as practical.
- Minimize ecological impacts as much as possible to the land and water surrounding the dam during the drawdown and dam removal.

Prescriptions

- Remove all stop logs remaining in the dam structure. Stage the removal of stoplogs to be gradual to help control/minimize as much as possible sediment movement downstream. Leave concrete portions of the dam structure and earthen embankment in place until funding for removal is secured.
- Apply for and receive any state, federal, county or local municipality permits needed for work on the property beforehand.
- Remove all portions of the dam structure and earthen embankment on Wozny Road when funding becomes available.
- During the structure removal from the river channel, consider flow diversion pumping (partial) around active in-water construction areas to minimize turbidity and protect water quality. Also, consider diverting fisheries from the portions of the project that have active construction as much as possible.
- Manage the Totogatic River portions of the property according to the standards in Wisconsin Administrative Code NR 302 for the Management of Wisconsin's Wild Rivers and Outstanding Water Resources criteria in Wisconsin Administrative Code NR 102.10, Water Quality Standards for Wisconsin Surface Water.
- Utilize appropriate Best Management Practices for erosion control and site stabilization during the drawdown and removal of the dam and earthen embankment. Utilize silt curtains to isolate instream construction work for the concrete removal in the channel.
- Monitor fisheries community in the former flowage area post-dam removal as resources allow, but preferably once every four years. Monitor fish species diversity, and species age structure.

Authorized Management Activities and Tools

All activities listed above in the management prescriptions and those listed below are authorized on the property as may be appropriate.

- Chemical Application
- Mechanical/mowing or shearing
- Hand cutting (chainsaw & girdling)
- Prescribed burning
- Timber sales
- Construction activities related to dam and dike removal and site restoration. Bio-fuel harvest
- Seeding grass cover and wild rice
- Installing best management practices to control erosion and sediment movement during construction projects
- Control of invasive species via chemical application or approved biocontrol
- Placement of nest boxes, platforms or similar devices to enhance reproduction of desired wildlife species

Public Use Management and Development

General Recreation Management and Uses

The entire TRWA property is open to traditional outdoor recreational uses including hunting, fishing and trapping. These activities are primary recreational uses of the property. Other activities allowed on these lands include wildlife viewing, photography, hiking, biking, paddling, cross country skiing, and snowshoeing.

Existing recreational facilities include five designated parking areas, a concrete boat ramp for small water craft use and several hunter access trails. There is also a nearby county owned boat launch immediately downstream of the Nelson Lake dam. See map B-2.

Motorized vehicle access is available on designated public access roads and parking lots. Snowmobiles and ATVs are allowed only on trails designated for their use. There are allowances for individuals with mobility impairment under the power-driven mobility device regulations of the Americans with Disabilities Act. For more information on these allowances, please contact the property manager.

Edible fruits and nuts, wild mushrooms, and wild asparagus may be removed by hand without a permit for personal consumption by the collector. Cutting of willow branches is allowed with a permit from the property manager. Collection of seeds, roots, or other plant parts is prohibited.

Information on rules governing public use of Department-owned lands is found in Chapter NR 45, Wisconsin Administrative Code.

Recreation Management

The wildlife area is open to traditional outdoor recreational uses including hunting, fishing, trapping, walking, nature study, and berry picking. Overall, TRWA's potential for recreational use is greatly limited by its wet and unstable soils. The property is most suited to hunting, trapping, and wildlife watching from selected viewing sites.

Existing Totogatic River Wildlife Area signage near wildlife viewing area off State Highway 27. Warwick 2017.

Hunting and Trapping

Hunting and trapping opportunities are abundant and are major recreational activities on the TRWA properties, with opportunities to pursue white-tailed deer, turkeys, grouse, woodcock, snipe, American black bear, North American river otter, waterfowl (raccoon, gray squirrel, snowshoe hare, and cottontail rabbits. Deer, grouse and turkey frequent this property and hunters here are provided some of the best opportunities in northern Wisconsin.

Objective

- Maintain and enhance habitat that offers abundant hunting and trapping opportunities for big and small game.

Prescriptions

- Manage upland forest habitat for a variety of age classes and stand sizes across the landscape for wildlife habitat benefits.
- Within the upland hardwoods upland forest, manage for up to 5% more uneven aged aspen to benefit grouse, woodcock, turkey and deer.
- Maintain wildlife opening areas as grassland/foraging food source for small and large mammals.
- Selectively strip shear lowland and upland shrub (alder) transitional areas for habitat to benefit turkey, waterfowl, and woodcock.

Fishing, Paddling, Wildlife Watching and Other Recreational Pursuits

Objectives

- Support non-hunting related nature-based recreational activities, such as fishing, paddling, photography, and wildlife viewing.

- Improve accessibility for mobility-impaired individuals where feasible.
- Provide shore fishing opportunities.
- Improve and maintain watercraft launch facilities on the property, particularly for paddle craft use.
- Provide and maintain a system of access trails for use by hunters, hikers and other property users.

Prescriptions

- Maintain existing parking areas, access roads and signage consistent with Department rules and policies.
- Periodically mow and otherwise maintain as necessary the existing closed primitive roads for walking access by hunters, hikers and other property users. Improve signage at access points to expand public awareness of the hunter/hiker walking trail system.
- Develop accessible pathways/boardwalks to the river to increase shore fishing opportunities.
- Create/refurbish wildlife viewing area along Highway 27. Add paved entrance and roadway; ensure at least four parking stalls and an ADA compliant path to viewing/photography vista.
- Improve watercraft accessibility near the former Wozny Road dam site post-dam removal. Provide at least 8 parking stalls and a safe area to launch canoes, kayaks and shallow draft watercraft. (Upstream, near STH 27, parking for putting watercraft in the Totogatic exists at the Nelson Lake launch.)
- Integrate accessibility into development and construction of new or upgraded infrastructure. Gate replacement for ADA accessibility is an option for improvements on hunter walking paths.

Road Management

The TRWA has a network of roads and parking lots that are used for management purposes and public access, shown on Map B-2a. Except for the short parking lot access roads, all other roads on the TRWA are closed to public vehicles. Closed roads are gated or signed. These management roads also provide foot access ways for hunters, hikers and other property users.

The following management and maintenance prescriptions apply to department managed roads and parking lots:

- Maintain the current level of public and department management vehicle access roads.
- Maintain permanent management roads and public access roads in sustainable condition per Wisconsin's Forestry Best Management Practices for Water Quality.
- Regularly inspect active roads especially after heavy storm events. Clear debris as needed from the road surfaces, culverts and ditches to decrease unsafe conditions and prevent damage.
- Maintain stable road surfaces to facilitate proper road drainage and reduce degradation from traffic.
- Ensure public access roads are clearly marked and signed.
- Monitor soil disturbance and take measures to protect excessive damage.
- Restore roads used in timber harvest to non-erosive conditions, in accordance with Wisconsin Forestry's Best Management Practices for Water Quality.

Project Boundary and Acreage Goal Modification

This plan recommends remedying an apparent previous real estate recording error. A state-owned 40-acre parcel along the TRWA's northern boundary was excluded in the real estate records. This parcel is contiguous with the TRWA property boundary and has been consistently managed as a part of the TRWA. It is recommended the boundary be expanded to include this parcel and the ownership goal by increased by 40 acres. The revised acreage goal and ownership total will be 2,799.05 acres.

CHAPTER TWO: Section Two

General Administration Management Policies and Provisions

The following section describes the general property administration and management policies and provisions that apply to the TRWA.

State and Federal Approvals Required

The permits that are anticipated to be needed for the actions proposed in the plan include:

- WDNR permit through Chapter 30, 31 Wisconsin State Statutes for alterations to waterways and water control structures.
- NR 347 Wisconsin Administrative Code for the dredging of sediments in navigable waterways.
- WDNR Stormwater Notice of Intent permit under NR 216 Wisconsin Administrative Code.
- WDNR Aquatic herbicide use permit under NR 107 Wisconsin Administrative Code.
- WDNR permit coverage for pit trench dewatering or landspreading of sediment under Chapter 283 Wis State Statutes.
- Potentially a WDNR solid waste permit for the disposal of reinforced concrete and broken pavement under NR 500 Wisconsin Administrative Code. These materials may not be disposed of in a wetland or floodplain and disposal cannot cause a nuisance or environmental problems.
- Municipal /county permits
- Any United State Army Corps of Engineers Permits for construction in or near waterways and wetlands.

*Note: NR 102 and NR 302 outlines the specific details for projects on a Wild River and Outstanding Water Resource. These standards may apply to activities proposed in or near the Totogatic River.

Research

Research projects that support or are consistent with the TRWA goals, objectives, or management prescriptions may be authorized and conducted on the TRWA.

Facility Management Authority

The TRWA manager may relocate or temporarily close road or trail segments or other public use facilities.

Cultural Resource Protection

All requirements for the protection of archeological sites and historic structures will be complied with. Federal Section 106 (commonly called SHPO) and state cultural resources law (s. 44.40) and requires review of actions that may impact significant (eligible for listing in the National Register of Historic Places) cultural resources regardless of whether there are any recorded in the area. Surveys to search for unreported sites may be required. Section E, Part 2, Manual Code 1810.1 [PDF 287KB] contains a list

of items that must comply with historic preservation laws for activities on department lands using Sport Fish Restoration funds, and for fisheries lands, access sites and wildlife areas.

Public Health and Safety
All facilities will comply with federal, state, and local health and sanitation codes. The TRWA manager has the authority to close areas or facilities to access if necessary due to health, safety, or environmental damage concerns. In designated public use areas, such as designated parking lots and designated trails, trees or other natural elements that are deemed public hazards will be removed.

Refuse Management
Visitors are required to carry out any refuse they bring in because no designated refuse or recycling receptacles are available. Burying of refuse is not allowed anywhere on the property.

Disabled Accessibility
All new construction and renovation of infrastructure will follow guidelines set forth within the Americans with Disabilities Act. Following standard department protocol, the TRWA manager has the authority to make reasonable accommodations, including motorized vehicle access, for people with disabilities.

Funding Constraints
Implementation of the master plan is dependent upon staffing and funding allocations that are set by a process outside of the master plan. Operational funding for the department is established by the state legislature. Development projects also follow an administrative funding and approval process outside of the master plan. Many of the initiatives contained within the plan are dependent upon additional funding and staffing support. Therefore, several legislative and administrative processes outside of the master plan will determine the rate this master plan will be implemented.

Management Restrictions - Federal Funding Related
Some of these lands were purchased with Pittman-Robertson Wildlife Restoration Act funds through the U.S. Fish and Wildlife Service and are protected by statutes and federal regulations that prohibit a state fish and wildlife agency from allowing recreational activities and related facilities that would interfere with the purpose for which the State acquired, developed, or is managing the land. Prior to engaging in any major land management activity or development it is important to determine whether the proposal conflicts with federal post-grant funding regulations. Review and approval of the U.S. Fish and Wildlife Service may be required.

Activities undertaken on lands purchased with Federal funds or utilizing Federal dollars on development projects (and other land management activities that disturb the intact soils) require property managers to complete Federal compliance requirements. The requirements are addressed during project submission for work planning. In all cases, the requirements listed below, if applicable, must be completed before the activity or construction commences.

Endangered, Threatened and Species of Special Concern Protection
Implementation of all management prescriptions in the master plan will be carried out with consideration of the needs of endangered, threatened, and species of special concern and the potential impacts to the species and their habitat. Management actions planned during plan implementation will be checked against a database of listed species to assure that no department actions result in the direct taking of any known endangered or threatened resource.

Best Management Practices for Water Quality
All forest management activities will comply with the most recent version of the guidelines in the Wisconsin Forestry's Best Management Practices for Water Quality (BMPs). Soil disturbing construction activities will be in compliance with runoff management site erosion control best management practices outlined in NR 151, NR 216 Wisconsin Administrative Code. Activities related to construction in or near a waterway or wetland will be in compliance with Chapter 30/31 Wisconsin State Statutes, and NR 103 Wisconsin Administrative Code.

Pest Control
Wisconsin Statute 26.30 states; "It is the public policy of the state to control forest pests on or threatening forests of the state…" Any significant forest pest events will be evaluated with consideration given to the property management goals and the potential threat of the pest to other landowners. Infestations of the non-native gypsy moth caterpillar will be managed per the Forest's Gypsy Moth Management Plan. Responses to significant infestations from other forest pests may include timber salvage or pesticide treatments. Any response to a significant pest outbreak will be evaluated by an interdisciplinary team of scientists and communicated through press releases and notices to interested parties.

Control of Invasive Species
Invasive plants will be regularly monitored and controlled using appropriate and effective methods, including but not limited to the use of bio-control, herbicides, cutting, hand removal, or fire. Control methods may be restricted in certain sensitive management areas.

Chemical Use
Herbicides and pesticides may be used for various purposes such as the control of invasive plants or to control plant competition in vegetation regeneration areas and insect control except as restricted in the management prescriptions in this master plan. All department procedures and herbicide and pesticides label requirements will be followed.

Fire Suppression
As stated in Wisconsin Statutes 26.11, "The department is vested with power, authority and jurisdiction in all matters relating to the prevention, detection and suppression of forest fires outside the limits of incorporated villages and cities in the state except as provided in sub (2), and to do all things necessary in the exercise of such power, authority and jurisdiction." Forest fire suppression actions will consider the property management goals and the threats of the fire to life and property. Appropriate techniques will be used in each event to provide effective fire suppression while minimizing resource damage.

Authorized Response to Catastrophic Events
Wildfires, timber diseases and insect infestations are natural occurrences but shall be controlled to the degree appropriate to protect the values of the property. Necessary emergency actions may be taken to protect public health and safety. Appropriate management responses to catastrophic events are determined on a case-by-case basis, and action will be taken as appropriate.

Non-Metallic Mining
The department may use sand, gravel, fill dirt, or other fill material from department-owned lands for Department use.

General Real Estate Management

Aides in Lieu of Taxes

For all State properties purchased after 1992, the department makes an annual payment in lieu of property taxes to replace property taxes that would have been paid if the property had remained in private ownership. More detailed information on how the department pays property taxes may be found in a publication titled, Public Land Property Taxes, PUB-LF-001 and can also be found at: http://dnr.wi.gov/org/land/facilities/realestate/pilt.html.

Easements, Access Permits, and Land Use Agreements

Easements, access permits, land use agreements, and leases provide access across state property for utilities, public roads, snowmobile trails, or other public-benefit infrastructure, access to private ownership within a property boundary, and provide for a variety of temporary uses on a department property. Such arrangements require consultation and joint action by the affected program and the Bureau of Facilities and Lands, Real Estate Program staff. While such situations may serve a public purpose (e.g., a utility corridor or a road) they may adversely affect a management unit by:

- Restricting the department's future management options;
- Limiting the public's full use and enjoyment of a property;
- Preventing natural succession of cover types;
- Introducing exotic and invasive species to the property;
- Introducing additional herbicides and other contaminants to the property; and
- Creating liability concerns.

The conveyance of easements and other agreements is subject to sections NR 1.48 and NR 1.485, Wis. Adm. Code. Before any rights are conveyed, the Bureau of Facilities and Lands Real Estate staff must determine if federal funds were used to acquire the land and, if so, obtain the appropriate approvals.

Public Outreach

The public and other governments may be provided opportunities to have on-going involvement in the implementation of this master plan. This communication plan describes how the public will be periodically informed about activities and developing issues on the TRWA and it provides information on how the public will be notified of opportunities for involvement when significant, new issues related to management of the property arises. Annually the department will issue a [monitoring] report that summarizes the following items:

- For the past year, the primary management and development activities that were completed and other significant issues that were addressed.
- For the up-coming year, outline any planned management and development activities and any changing management actions or approaches.

The annual report may also include other information of interest to the public on various topics related to management and use of the properties. Some of the additional types of information that may be included from time to time are: the status of forest insect or disease problems, storm damage, new information on endangered or threatened species, recreational management problems or new opportunities, and any significant recreational use changes or trends on the property. The annual report will be available on the DNR internet web site.

The department will meet annually, or more frequently as deemed appropriate, with local tribes and local government officials to discuss mutual issues related to management of the TRWA.

In the event the department considers a change to the master plan (via a plan variance or amendment) the public will be informed of the proposal and the review and comment process. As appropriate, news releases will be used to announce master plan amendment/variance proposals and review procedures. The department will also maintain a contact list of persons, groups, and governments who have requested to be notified of potential plan changes.

WDNR Contacts

The following department staff may be contacted regarding questions about the TRWA or the master plan. At the time of this publication, the contact information is:

Mike Bulgrin, Wildlife Technician and Property Manager
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Madison, WI 53707
(608)266-2698
Shelley.Warwick@wisconsin.gov

CHAPTER THREE: BACKGROUND AND SUPPORTING INFORMATION

The data in this chapter is drawn from the Regional and Property Analysis, Totogatic River Wildlife Area (DNR 2016). More information on the regional context of the TRWA may be found in this document.

Overview

The Totogatic River Wildlife Area is a 2,719-acre property with approximately 1,050 acres of wetland habitat and up to 400 acres of standing water. On average, there is currently between 100-200 acres of open water during the growing season. The local landscape is dominated by forested uplands with a significant component of both forested and non-forested wetlands. The property is in an area with large tracts of county forest in four different counties, although nearby Nelson Lake has a developed shoreline in private ownership. The Totogatic River flows through Nelson Lake then through the wildlife area, and eventually drains northwest and westerly to the Namekagon River in Burnett County. The Totogatic River is a high quality water resource in the state. It is a state designated Outstanding Water Resource, and Wild River upstream of the Nelson Lake dam and 500 feet downstream of the Totogatic dam.

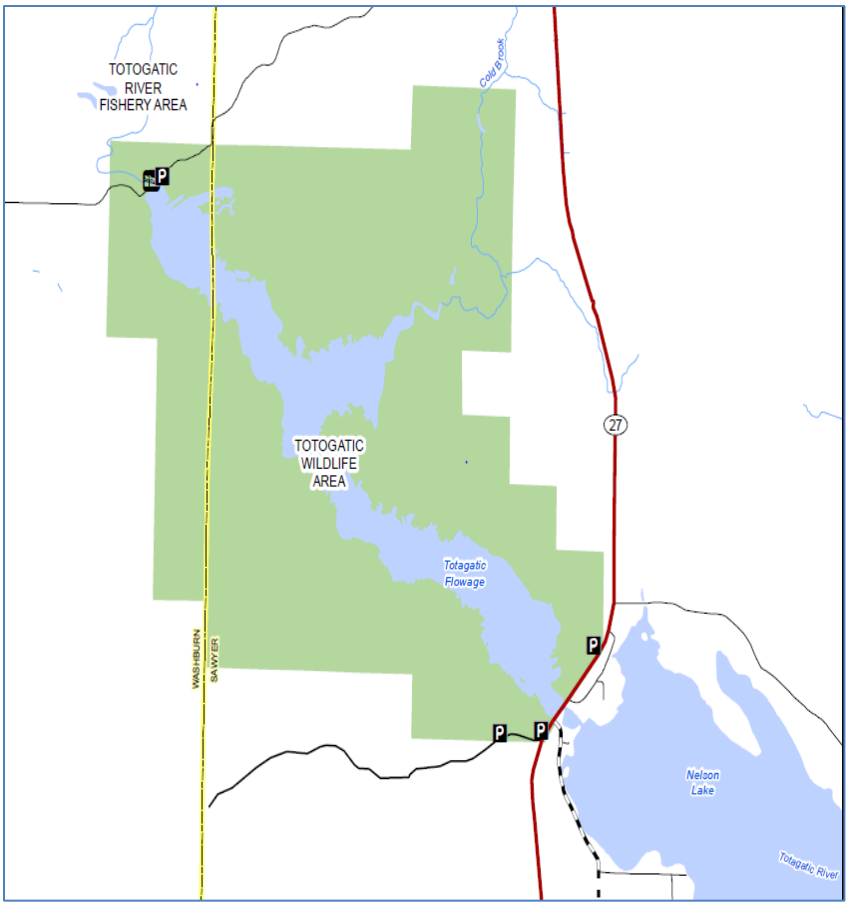

Figure 2: Map of the Totogatic River Wildlife Area, WDNR, 2016

The acquisition of Totogatic River Wildlife Area was proposed by the Hayward Rod and Gun Club in 1941 and was completed in 1951. This project was funded through the Pittman-Robertson Act as a waterfowl restoration area. It was originally felt that the area offered an unusual opportunity for waterfowl habitat because of the grass marsh biota present. It was believed that most the marsh land in the northern forested areas were too acid to produce good aquatic habitat (WDNR, 1954).

A 600-foot dike and 70- foot dam was completed in 1953 which flooded approximately 1,000 acres with about 400 acres of open water. Fifteen miles of roads were constructed on the property to improve access and provide fire breaks. Boat landings were built at both ends of the flowage to provide public

access. The dam was modified in 1960 to add one tier of stop logs. Minor repairs were made to the dam in 1973.

Totogatic Dam at Wozny Road, MSA 2012.

The Totogatic River Wildlife Area had a property Master Plan Concept Element approved in 1981 and subsequently in 1983 a property Master Plan Implementation Element was approved. The goal for this property was to "manage a state-owned area for the benefit of fish and wildlife-based recreation, protection of endangered species and to provide compatible recreational opportunities (WDNR, 1981)." The original recommended management and development plan included the maintenance of fisheries and public access, management of uplands for forest game, the enhancement of wood duck habitat, and there have not been any variances, amendments or any other master plan updates since these plans were approved in 1981 and 1984.

Federal Funding

Funding for much of the acquisition of land in Totogatic River Wildlife Area came from the Federal Wildlife Restoration Program (Pittman-Robertson) through the U.S. Fish and Wildlife Service. These lands are protected by statutes and federal regulations that prohibit a state fish and wildlife agency from allowing recreational activities and related facilities that would interfere with the purpose for which the State acquired, developed, or are managing the land.

Physical Environment

Geology, Soils and Water Resources

The Totogatic River Wildlife Area is underlain by igneous and metamorphic rock, generally covered by 5 to 100 feet of glacial drift deposits. Nearby landforms are characterized by end and ground moraines

with some pitted outwash and bedrock-controlled areas. Kettle depressions are widespread and steep; bedrock-controlled ridges are found in the northern portion of the North Central Forest.

There are an estimated 14 soil units found in the Totogatic River Wildlife Area. Most fall within three classifications: 1. Lupton Cathro and Tawas soils which are an inundated, very poorly drained, deep organic muck over sandy loam soils. 2. Frogcreek silt loam and 3. Stanberry sandy loam. The Frogcreek and Stanberry series are similar due to that they are characteristic of ground and end moraines. Both are also very stony soils and moderately well drained (NRCS, 2016).

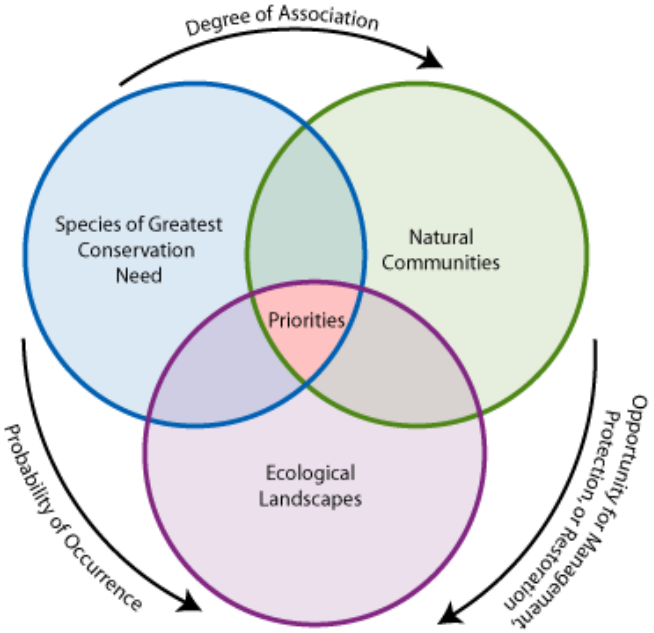

Figure 3. Illustrates the process used for identifying Ecological Priorities in the Wisconsin Wildlife Action Plan.

The Totogatic River (generally pronounced To-TA-ga-tik) is an 80.0-mile long tributary of the Namekagon River in northwestern Wisconsin in the United States. Via the Namekagon and St. Croix rivers, it is part of the watershed of the Mississippi River. Its name is derived from the Ojibwa language Dootoogaatigo-ziibi meaning "River of Boggy Riverway" due to its course through wetlands. The Totogatic is formed by the confluence of its east and west forks in southwestern Bayfield County, and flows generally westward through Sawyer, Washburn, Douglas and Burnett counties, passing through several lakes. It joins the Namekagon River in Burnett County, 45 miles (72 km) south of the city of Superior (Wikipedia, 2016). The Totogatic River flows through the property and is impounded by the Wozny Road Dam. The Totogatic River is listed as both an Outstanding Water Resource and as a state-designated Wild River at its free-flowing locations (the four flowages Nelson Lake, Totogatic, former Colton, and the Minong excluded). The river provides rich habitat for diverse aquatic and terrestrial species, has excellent water quality, beautiful scenery, and great fishing and paddling opportunities.

The Totogatic Flowage is located entirely within the wildlife area varies from 100-200 acres of open water depending on water levels and time of year. Average depths range between ½ a foot to three feet with select areas of 3-6 foot depths. The 64- year old impoundment is becoming more shallow and filled with soft sediment as it ages. Winter fish kills and dissolved oxygen variability will continue to be a water quality challenge with the flowage as increased soft sediment accumulates.

Ecological Landscape and Natural Communities

The Totogatic River Wildlife Area is located within the North Central Forest Ecological Landscape. This ecological landscape encompasses 9,543 square miles (6,107,516 acres), representing 17% of the area of the state of Wisconsin. Forests cover approximately 75% of the North Central Forest. The mesic northern hardwood forest is dominant, made up of sugar maple, basswood, and red maple, with some stands containing scattered hemlock, yellow birch, and/or eastern white pine pockets. The aspen-birch forest type group is also abundant, followed by spruce-fir. Forested and non-forested wetland communities are common and widespread. These include Northern Wet-mesic Forest (dominated by

either northern white-cedar or black ash), Northern Wet Forest (acid conifer swamps dominated by black spruce and/or tamarack), and non-forested acid peat lands (bogs, fens, and muskegs). Other relatively common wetland communities here are alder thicket, sedge meadow, and marsh including wild rice (WDNR 2016).

The Totogatic River Wildlife Area is managed primarily for an un-even aged northern hardwood forest which is also the dominant vegetation type in the upland forested portion of the property with sugar maple, basswood, ash, red oak and red maple. A variety of other natural community and vegetation types also are represented on the property. There are numerous small stands of early successional forest, swamp conifer and swamp hardwoods throughout the property. The emergent wetland areas are dominated by broad leaved cattail.

The Wisconsin Wildlife Action Plan (WDNR 2006b) identified the best ecological landscapes in the state for sustaining various natural communities. The North Central Forest Ecological presents "major" or "important" opportunities for sustaining 57 different natural communities. Of these, seven occur in the Totogatic River Wildlife Area:

- Riverine Impoundment - Reservoirs
- Warm water river
- Northern Hardwood Swamp
- Northern Mesic Forest
- Aspen-Birch
- Riverine Mud Flat
- Emergent Marsh

See WDNR (2006b) for more detailed descriptions of these natural communities.

Vegetative Cover

Most of the Totogatic River Wildlife Area is split between two habitat types: marsh and forested upland. Emergent marsh is the most prevalent cover type in the property currently. These areas comprise approximately 41% of the vegetative cover in the TRWA. Emergent wetland areas adjacent to the current flowage have large stands of monotypic cattails. The presence of wild rice is limited to single stalks in very small areas of the flowage and varies from year to year (Smith, WDNR 2016.) Swamp hardwoods and swamp conifers are a smaller area of the property with about 10% of total cover. Upland forested areas of northern hardwoods, aspen stands and upland conifers and are approximately 34% of the Totogatic River Wildlife Area vegetative cover. A detailed breakdown of generalized cover types for the

White Trillium (trillium garndiflorum) found near a road edge and upland forested area in the TRWA, Warwick 2017.

Totogatic River Wildlife Area based on the Wisconsin Forest Inventory and Reporting System (WisFIRS) is given in Table 1. Land cover types are shown in Map B-3.

Table 1: Current and Projected Land Cover for the Totogatic River Wildlife Area

Cover Type	Acreage	Total Percentage of Land Cover	Projected Acreage	Projected Cover Type Percentage
Emergent Vegetation	1063	41%	1211	46%
Upland (Northern) Hardwood	545	21%	545	21%
Aspen	322	12%	319	12%
Water	275	11%	21	0.80%
Swamp Hardwood	230	9%	196	7.5%
Swamp Conifer	29	1%	29	1%
Grassland	48	0.4%	65	2.5%
Upland/Lowland Shrub	100	4%	226	9%
Upland Conifer	1	0.04%	1	0.04%
Developed	1	0.04%	1	0.04%
Total	2614	100%	2614	100%

Source: WDNR WisFIRS 2016

Forest Habitat

According to the current WisFIRS data, there are 1,165 forested acres in the Totogatic River Wildlife Area accounting for 44% of the total property acreage. Figure 3 illustrates the cover types by type and acreage.

Aspen stands are comprised of either bigtooth aspen (Populus grandidentata) or trembling aspen (P. tremuloides). Aspen is a pioneer successional species which relies on a frequent disturbance regime to regenerate and maintain itself as the dominant timber type. Aspen is generally grown to a rotation age of roughly 50 years and regenerated with a coppice harvest. Aspen provides valuable habitat to a variety of wildlife species throughout its lifecycle, but is very important during its seedling and saplings stage which provides browse and cover.

Northern Hardwood stands within the Totogatic River Wildlife Area are made up of a combination of sugar maple (Acer saccharum), basswood (Tilia americana), white ash (Fraxinus americana), yellow birch (Betula alleghaniensis), red oak (Quercus rubra) and red maple (Acer rubrum). The northern hardwoods timber type is a late successional cover type primarily made up of shade tolerant tree species. This timber type relies on the absence of major disturbance events and instead maintains itself through gaps created in the canopy due to timber harvests or natural dieback of the canopy. Due to some old growth characteristics, this timber type is very important to animals which use cavity trees for nesting or overwintering.

Swamp Conifer stands are made up of Northern white cedar (Tsuga Canadensis), black spruce (Picea mariana), or tamarack (Larix larcina). These stands are located on poorly drained soils, typically adjacent to or contained within wetlands. These even aged stands are typically grown out to rotation age and regenerated using seed tree harvests or strip clear cuts.

Swamp Hardwoods stands are comprised of a combination of black ash (Fraxinus nigra), green ash (Fraxinus pennsylvanica), red maple (Acer rubrum), and elms (Ulmus spp.) These stands are located on poorly drained soils, typically adjacent to or contained within wetlands. These even aged stands are typically grown out to rotation age and regenerated using seed tree harvests or strip clear cuts.

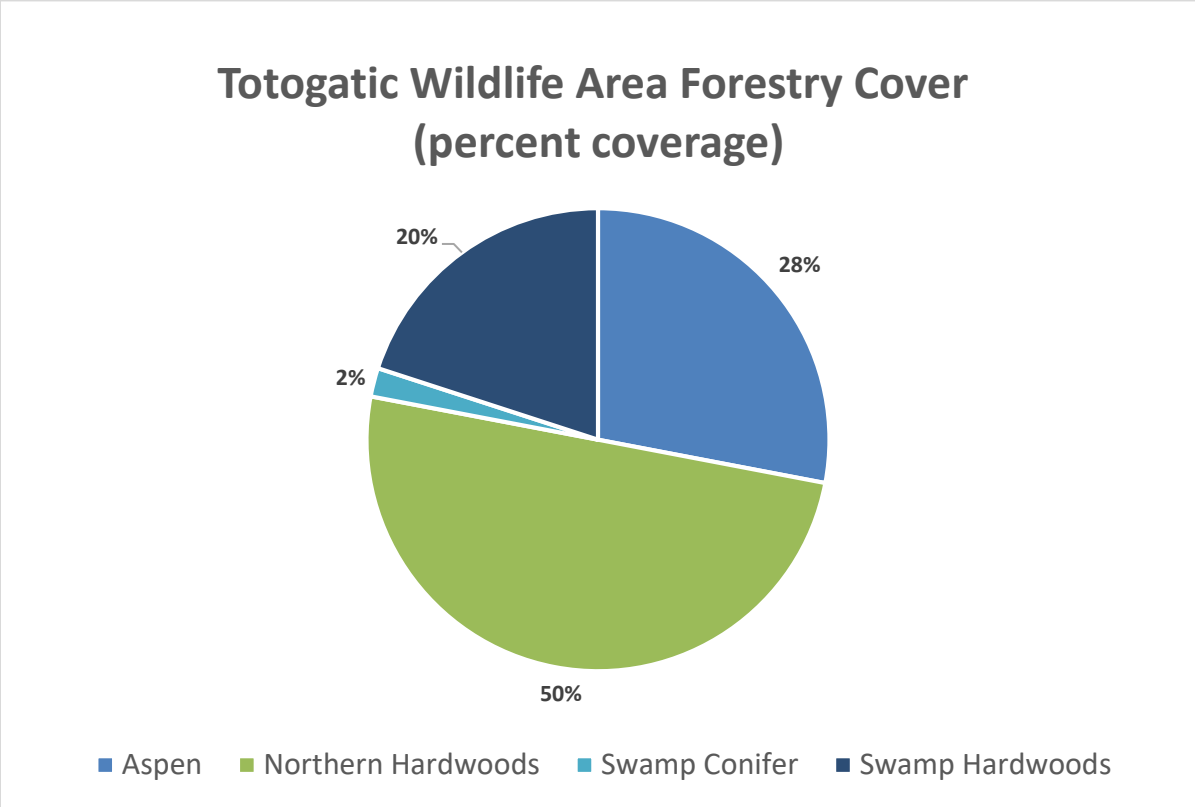

Figure 4: Forest Cover in the Totogatic Wildlife Area. Source: WDNR WisFIRS, 2016

Fisheries

Species present in the Totogatic Flowage in the 1970s include bluegill, black crappie, pumpkinseed, yellow perch, northern pike, black bullhead, walleye, brown bullhead and largemouth bass with the most abundant species being bluegill, pumpkinseed and northern pike. In the 1980s, WDNR survey data showed northern pike were less abundant. Bluegill and largemouth bass were the most common species at that time. Recent fish shocking surveys from 2014 show similar results indicating a low-density Northern Pike population, and abundant panfish.

The fish species composition and abundance of the Totogatic Flowage appears to be regulated by additions of fish coming from Nelson Lake. Loss of fish in the flowage is primarily due to overwinter mortality and to a lesser extent entrainment over the Wozny Road Dam. While some water areas around the Wozny Road Dam on the Totogatic and Nelson Lake dam stay open for much of the winter, there are very few areas that might have suitable wintering conditions for fish in this small shallow flowage. Increasing sedimentation in the flowage will continue this shallow water trend. The species composition reflects this with low dissolved oxygen tolerant pumpkinseed being a dominant panfish, and northern pike being a dominant predator. It seems likely that most of the bass, crappie, and walleye in the Totogatic Flowage are present because of influence of Nelson Lake, although based on the 2014

Figure 5- Aerial photo showing Totogatic River Wildlife Area and adjacent Nelson Lake. Nelson Lake heavily influences the fishery found in the Totogatic Flowage and River. Photo Source: Google Earth, 2017.

survey, that cannot be determined conclusively. None of the species surveyed in 2014 on the Totogatic Flowage had exceptional size or abundance. Although it should be noted that reliable angler reports and previous surveys indicate that the flowage can hold large Northern Pike.

Wildlife and Habitat

The Totogatic River Wildlife Area is a diverse habitat area for several small and large mammals, birds, and aquatic organisms. The Bald Eagle is a species of Special Concern and has been known to nest on the property. The property is dominated by four primary wildlife habitat groupings: forested (as detailed in a previous section), open water/emergent vegetation, deep water, and upland/lowland brush habitat.

Open Water and Emergent Vegetation Habitat

The Totogatic River Wildlife Area was acquired originally for creating waterfowl habitat for improved hunting opportunities. As the flowage, has aged over the last 60 years and broad leaved cattails have taken over the emergent vegetation fringe, habitat has not been as ideal as hoped. Marginal duck nesting habitat surrounds the flowage with poor to marginal waterfowl brood habitat quality. Waterfowl mostly use the flowage now for feeding and loafing during migration. Other wildlife that utilizes this area includes heron, otter, muskrat, turtle and frog species.

Deep Water Habitat

The deep-water habitat in select areas on the flowage contains mainly pond and water lily, water shield, and coontail, but the overall submergent community is diverse with 16 species cataloged during summer of 2016 plant surveys. Floating leaf and submergent leaf plants can be used for food sources, cover and reproductive lifecycle fulfillment by amphibians, macroinvertebrates, microscopic zooplankton, and the various fish species that inhabit the flowage.

Upland and Lowland Brush Habitat

The shrubby, alder dominated wetland - upland transitional areas have the potential for providing habitat for some waterfowl, small and large mammals such as deer, turkey, bobcat, lynx, raccoon, opossum, grey wolf, grey fox, black bear, birds like nuthatches, waxwings, warblers, grouse, owls, bald eagles, hawk and osprey. Similar wildlife species can be expected in the forested portions of the Totogatic River Wildlife Area.

Cultural Resources

There are no known historical or archaeological sites in the Totogatic River Wildlife Area; however, there has been very little survey work in Sawyer County to identify such resources. The State Historical Society has stated that the probability of archaeological material being found on or near this property is high given the topography and location. Land disturbing activities on the property could encounter archaeological resources (WDNR, 2016).

Recreation

The flowage is now used more heavily for fishing than waterfowl hunting and is a popular place in spring and fall for viewing migrating waterfowl. Osprey nesting platforms have been placed on the property. Currently hunting, trapping, fishing, snowshoeing, bird watching, and canoeing are the main recreational activities. Cross country skiing occurs as well, although there are no groomed trails. Snowmobiles and ATVs are allowed only on designated county routes. Boat launches on the upper and lower end allow for public access to the flowage. The shallow water depths in the flowage limit the use of motorized boats, but canoeing and kayaking are popular recreational uses

Existing boat launch upstream of the Wozny Road dam, Warwick 2017.

Public Use and Opportunities and Needs

The Totogatic River Wildlife Area is in a region of abundant public recreation land and waterbodies. With most of the lakes in the area having developed shores, the wildlife area's natural, undeveloped shoreline aesthetics are a special attraction. In contrast, Nelson Lake, approximately 2,700 acres, lies immediately upstream and is developed with cottages and has motorized use.

The wildlife area offers a variety of nature-based outdoor activities particularly visitors come to fish, hunt, trap, watch birds and wildlife, hike, and paddle the quiet waters of the flowage. The flowage is a popular with local anglers, especially for northern pike. Two boat launches provide access to the flowage, but shallow water limits motor use in several areas. The trend for decreasing water depths will continue in the Totogatic Flowage with likely challenges for recreational access, water quality and waterfowl usage.

The Wisconsin Statewide Comprehensive Outdoor Recreation Plan (SCORP) for this area indicated that survey respondents were looking to have an increase in hiking trails, silent sports, birdwatching, and kayaking opportunities. Other than formal designated hiking trails or a designated wildlife viewing area, this property meets all the desired public uses in its current state. With the aging population, there is a demand for increased access for less able persons. An issue that should be reviewed and opportunities assessed.

Significant Property Management Issues

Wozny Road Dam

The Totogatic River Wildlife Area flowage is formed by a state-owned dam at Wozny Road. This 64-year-old dam is nearing the end of its useful life and recent third party inspections have indicated that the concrete dam is deteriorating. There is water seepage in several areas of the adjacent earthen dike. As the owner of the dam, WDNR is responsible for repairing, replacing or abandoning the structure. Considering cost, future maintenance costs and staffing, available funding sources, environmental impacts (specifically water quality) and wildlife habitat, this plan includes the recommendation to remove the concrete structure and earthen dike. This will result in the aquatic resources on the property converting from a shallow flowage environment to a riverine environment. Upland forest communities, adjacent wetlands, and the nearby Nelson Lake impoundment not change holistically after the Wozny Road dam is removed.

During the summer of 2017, the Wisconsin Department of Transportation reconstructed portions of Wozny Road and created a clear span bridge crossing over the Totogatic River.

Crumbling concrete on right abutment of dam, taken at dam inspection MSA 2012.

CHAPTER FOUR: ANALYSIS OF IMPACTS OF THE PROPOSED PLAN

Introduction

This chapter, in combination with Chapters Two, Three and Five collectively constitute the Integrated Analysis for the TRWA Master Plan. The intent of the analysis is to disclose the environmental effects of an action to decision-makers and the public.

Chapter two of this document describes the elements of the proposed action, sometimes referred to as the preferred alternative. Chapter Five describes and evaluates the various alternatives that were considered in the planning process but not selected.

This analysis meets the requirements of the Wisconsin Environmental Policy Act (WEPA) and Chapter NR 150 of Wisconsin Administrative Code. Based on information presented in this chapter the proposed actions in the master plan are not anticipated to cause significant adverse environmental effects.

State or Federal Approvals Required

Approvals or regulatory permits may be required for several actions proposed in the plan, particularly those that involve disturbance of wetlands. Various state and federal regulatory permits are required to do modifications to ditches, dikes, water control structures and other actions that disturb wetlands. The specific permits that are required to complete the proposed actions in the plan are listed below:

- WDNR permit through Chapter 30, 31 Wisconsin State Statutes for alterations to waterways and water control structures
- WDNR Stormwater Notice of Intent permit under NR 216
- Local Municipal approvals for Construction, Erosion Control
- USACOE permit for waterway/wetland alterations
- WDNR Aquatic herbicide use permit under NR 107
- WPDES permit coverage for pit trench dewatering or landspreading of sediment

Impacts to Natural Resources

Air Quality

Potential impacts to air quality would come primarily from prescribed burns, and would not be significantly changed from current management. Prescribed (controlled) burns are a management tool that mimics natural fire disturbance and helps control many woody plants to maintain wetlands in an open condition. Prescribed burns would continue to occur seasonally (typically spring and fall) as they have in the past on wetland and grassland areas. Controlled burns may occur on a property every year though the area burned may be rotated between different locations on the property. The burn plan contains best management practices and procedures to safely manage the fire and includes measures to minimize nuisance smoke impacts.

Minor air emissions that would be generated on the property include 1) short-term dust from construction, road maintenance and 2) vehicle emissions generated by DNR motor vehicles, property

users and certain management activities, such as logging. These emissions will be insignificant compared to emissions from adjacent roadways and other motorized activities in the area.

Geological Resources and Landforms

No geological resources or landforms will be impacted by the proposed actions.

Soils

The probability of significant short-term or long-term cumulative impacts to the soil resources is low for the management activities prescribed in the Master Plan. No prime or unique farmlands will be impacted by this action.

The removal of the concrete, metal rebar materials and earthen dike in addition to the presence of heavy equipment will cause soil disturbance. Best management practices for minimizing erosion and waterway sediment movement will be employed to minimize risks and maximize protection.

The construction or maintenance of roads and parking lots will create small, short-term soil disturbances. These activities will not cause significant adverse impacts.

Timber harvesting activities will be confined to upland sites or on frozen ground conditions for productive forested wetlands. Soil erosion from forest harvesting operations will be minimized by the application of the strict standards of the Best Management Practices (BMPs) for Water Quality. All trails and primitive logging roads will be monitored for signs of excessive soil erosion caused by management activities or recreational use and actions will be taken to minimize the erosion potential.

Non-forested upland areas will be maintained in a vegetated condition, which will reduce the potential for soil erosion.

Water Resources

This plan does not include any recommendations for changes to the upstream Nelson Lake dam or flowage. Water level changes will not occur as a result of the proposed structural changes of the downstream Totogatic dam.

The Totogatic River is a designated Outstanding Water Resource and downstream of the Wozny Road dam it is a state Wild River. Extra precautions will be taken with construction activities in and adjacent to the river (per NR 302 and NR 102 Wisconsin Administrative Code). During the drawdown of the Totogatic Flowage and eventual dam removal, there may be short-term increases in water turbidity. These activities will not have a significant long-term negative impact on water quality or fish and aquatic life. In-stream temporary “aqua dams” or other turbidity barriers can be employed to protect downstream sediment movement during construction. Water quality best management practices will be followed for all projects that have the potential to affect water resources. Projects will be staged to minimize impacts to fish spawning and wildlife nesting periods. Erosion control best management practices will be met or exceeded. Activities also must follow all DNR invasive species decontamination and control protocol and practices.

Post dam removal, the Totogatic River will go through a restabilization stage and then reach an equilibrium stage. For approximately 4-8 months’ post dam removal, the river channel will be in a temporary state where it is reestablishing a meandering path through the former flowage area. How

quickly this occurs depends on the time of year, precipitation, and any other watershed changes (if present). Partially exposed mud flats adjacent to the river channel can be expected while the vegetation from the seedbank and cover crop (annual rye) is establishing. After the stream converts into a stable state, the width and depth in the river channel can be expected to mimic that found upstream of Nelson Lake and downstream of the former Wozny Road dam. From a longer-term perspective, the free-flowing conditions on the river will allow for greater dissolved oxygen and sediment transport opportunities. This can contribute to better fisheries habitat due to the fact that previously, dissolved oxygen concentrations in the increasingly shallow flowage were continuing to cause situations prime for fish kills.

Upland Habitat

The plant community management strategies described in Chapter Two will maintain and enhance the quality and composition of the habitats on the property. Vegetation management objectives outlined for the TRWA plan include maintaining ecologically important large, wetland habitats and to a limited degree, providing early successional forest habitat on the marsh fringe, which includes aspen and oak. The recommendations in this plan for the management of the property will not result any discernable changes to the upland habitat.

Wetland Habitat

Currently the TRWA property has approximately 1,150 acres of wetlands. Some of the shallow water wetlands are expected to make a community type transition as the soil hydrology adjusts to the changes with the dam removal. It is likely that some of the outlying shallow water cattail area may convert in 2-5 years to generally to be a wetland type with shallower water (wetland shrub-shrub, wet /mesic prairie potentially). The change in the edge areas near the upland/wetland fringe could create additional uneven aged alder growth that could improve grouse and woodcock habitat. The transition of the wetland acreage isn't expected to have an impact on the uses and overall habitat quality of the property.

Impacts to Wildlife – General

Changes to wildlife communities are generally not expected as a part of the recommendations set forth in this plan. Upland forested and lowland shrub/emergent wetland habitat will remain post dam removal. Less waterfowl habitat and stopover habitat will likely occur with the flowage transitioning from a shallow open water environment to a riverine environment. Waterfowl stopover habitat usage of the property will likely decrease given the changes with the flowage, particularly with diving ducks. Nearby Nelson Lake immediately upstream of the TRWA property will continue to provide stopover habitat for migrating waterfowl. Woodcock and grouse populations are expected to increase with the additional alder management and aspen coverage increases.

Fisheries

Fisheries overall composition and diversity is not expected to change with the recommendations outlined in this plan. This is primarily due to the connectivity of the Totogatic with Nelson Lake upstream. Fisheries information shows that the fish found in Nelson Lake closely mimic what is found in the Totogatic river and flowage. A restabilizing river channel may lead to greater habitat diversity than is currently present. A restabilized channel will likely include more woody cover, more riffle/run/pool habitat, and more firm substrates than is currently present, all of which could lead to increased spawning success for various species and a more resilient fish community.

Endangered, Threatened and Rare Species, Native Communities and Scarce Ecological Resources

There are not any documented endangered or threatened species on the property known; therefore, an impact is not anticipated.

Impacts to Recreational Facilities and Public Use Opportunities

Boating

The TRWA has historically been utilized for motorized and non-motorized boating. Water levels and sedimentation in the flowage over time have caused challenges with motorized boat use, but ample opportunities exist for canoes, paddle boarding, kayaks and shallow draft boats such as "Jon boats". The transition from a flowage or lake-like environment back to a riverine environment will mean that motorized boat traffic may be limited to shallow draft boats and higher water levels. Opportunities will remain unchanged for kayaking, paddle boarding and canoeing.

Fishing

While there will be a shift from shallow flowage to stream conditions, fishing opportunities should largely remain the same as what is currently experienced in the flowage because of the proximity to the Nelson Lake dam. Smallmouth bass favor riverine environments with natural run, riffle and pool in-stream feature, so an increase in the smallmouth bass population may occur.

Hunting and Trapping

The TRWA is popular for hunting (particularly waterfowl and deer) and trapping. The proposed habitat management recommendations will maintain the quality and extent of the wildlife habitats that supports these recreational activities. Upland hunting and trapping opportunities for small and large mammals will remain as they are currently. As described above, the decreased open water area may cause less waterfowl stop over habitat, but it is likely with the proximity of the Nelson Lake flowage immediately upstream, open water waterfowl hunting options will remain in the area. Mink and Beaver populations aren't expected to change much given that both species prefer a lake-like and river environments.

Waterfowl hunting options may still be present on the property post-dam removal due to the extensive wetland habitat area surrounding the Totogatic River. Property users will likely see a decline in diversity of the waterfowl that prefer open water environments. An increase may be seen in woodcock and ruffed grouse number with the increased active management of alder and aspen in the wildlife area.

Hiking – Bird/Wildlife Watching – Scenic/Nature Appreciation

Bird watching is a notable public use on the TRWA. Birders from across the region visit Totogatic. The property also is popular destination for people to walk and enjoy the expansive open landscape scenery and wildlife. This plan will maintain and enhance these opportunities and their quality. This plan supports these uses by maintaining the undeveloped nature of the TRWA property to maintain the seclusion and natural scenic beauty the public has commented that they value the property for.

Recreational opportunities will remain and in somewhat improved with the facility improvements recommended in the plan. Existing hunter access trails that double as informal hiking trails are also proposed to be maintained. Additionally, enhancements for the STH 27 wildlife viewing area are

recommended as a part of this plan. This will improve the access for viewing and photography uses with improved paved surfaces, an ADA complaint trail and adequate parking.

Impacts to Cultural Resources
No impacts to cultural resources are anticipated as a part of the recommendations in this plan.

Socio-Economic Impacts and Their Significance

Noise
Noise impacts from the habitat management and hunting activities is expected to be occasional and minimal, not significantly different than currently exists. There will be short-term increase in noise from equipment while conducting the dam removal.

Public Safety
There are no elements of the TRWA master plan that are anticipated to have a negative effect on public safety.

Timber Products
No significant changes in timber product production are anticipated.

Tourism
The TRWA will remain regional draw for people seeking peace and solitude in an undeveloped landscape. Recreational users can continue to utilize the property for fishing, hunting and trapping, small watercraft boating, photography, wildlife viewing and hiking.

Fiscal Effects on Local Government
The proposed plan will not generate any fiscal impact on local governments. The plan will not cause any change to the payments in lieu of property taxes (PILT).

Fiscal Effects on State Government
The overall cost for maintaining the TRWA facilities should decrease with dam removal. Overall annual costs of managing habitat and public use facilities will remain similar to current levels. Cost estimates for the proposed access improvements are not available as specific plans have not been developed at this time. Dam removal related costs are estimated to be $100,000-300,000.

Changes in Land Use
The proposed actions will not result in any change in land use on or off the property.

Impacts on Energy Consumption
Due to the limited amount of infrastructure development and renovation proposed, no significant impacts to energy consumption are expected.

Cumulative Effects, Risk and Precedent

Significance of Cumulative Effects

The proposed actions are anticipated to have positive long-term effects on the quality of the natural environment and recreational users. The habitat management and recreational use enhancements are expected to provide the following cumulative benefits to property users and the natural environment:

- Maintain and enhance recreational opportunities for users through improved facilities and sustainable wildlife populations for harvest and observation.
- Maintained habitat for the long-term benefit of game and non-game species, including many rare species and other species of special concern.
- Water quality improvements with the elimination of a shallow, sediment filled flowage that has had fish kills historically.

Significance of Risk

Management of the TRWA poses a low overall potential for risk. Largely, the management activities continue to be similar to those that have been used over the last several decades.

Other potential risks include sediment movement as a part of the drawdown and construction activities with the dam removal, establishment of invasive vegetation in the former flowage area.

The highest risk potentially is posed by the use of prescribed fire as a management tool. Necessary precautions and DNR procedures are always followed during prescribed burns, including having an approved burn plan and adequate fire-fighting equipment and personnel present on site. During periods of high fire danger, burning restrictions are put into effect and a complete burning ban may be implemented.

Significance of Precedent

Approval of this management plan will not directly influence future decisions on other DNR property master plans. Implementation of the objectives contained in the master plan will not be precedent-setting, primarily because the proposed habitat management, development activities and recreation actions are not unique and regularly occur on state wildlife, fishery and natural areas lands across Wisconsin. Additionally, the proposed management activities are similar to those that have been used over the last several decades.

CHAPTER FIVE: ANALYSIS OF ALTERNATIVES

This chapter describes the alternatives and anticipated impacts of alternative *considered, but not selected* during the development of this master plan.

Do Nothing Alternative

Under this alternative no changes would be recommended to habitat or recreation management, infrastructure, public access, or project boundaries. Existing management practices would continue to be applied within the existing boundaries. Such a plan may meet the bare minimum needed for master planning, forest certification, and other program needs. However, it would result in staff continuing to address issues on an ad hoc basis rather than integrating and prioritizing the challenges and opportunities that increasing populations, changing land uses, infrastructure management, and technological advances pose. The aging dam would remain in place and would eventually fail which could lead to an acute sediment release downstream and flooding damaging the new highway bridge crossing on the Totogatic River downstream.

Land Management Alternatives

Upland Forest

Aspen

Keeping the same amounts of aspen or decreasing aspen in the upland forested areas were options considered. Keeping the current amount of uneven aged aspen is a feasible option that could be employed. This would continue to maintain the existing quality wildlife habitat for deer, grouse and other small mammals, but the consensus from conversations with the public and biologists is that the aspen habitat could be expanded by up to 5% on the property and show a positive correlation with wildlife habitat needs on the property. Decreasing the aspen percentages would negatively impact the available food source, cover and nesting areas for the wildlife utilizing the aspen.

Oak

The option of increasing the red/white oak percentages within the northern hardwoods components of the uplands was considered. Although this would diversity the northern hardwoods forest areas, the efforts required to plant and establish red and white oak would not be reasonable, given there is not a native stock of oak present and oak does not compete well with a more mature canopy.

Emergent Vegetation

Cattail control (reduction) through chemical means was considered as an option to control the monotypic vegetation. The current lack of ability to fluctuate water levels in the impoundment has created a less than desirable cattail fringe around the existing water resources on the property. A larger scale herbicide application could occur as an attempt to control some of the cattail to encourage other emergent vegetation. The more this option was explored it seemed not feasible from a long-term standpoint given the amount of cattails, large amount of herbicide needed, the likelihood for success, and the overall cost. Through interview with the previous WDNR property manager Sam Moore, it was found that a large-scale herbicide treatment was attempted in the 1980's and was unsuccessful with a quick return rate of cattail regrowth.

Signage near hunter access trail, Totogatic River Wildlife Area, Warwick, 2017.

Recreation Management Alternatives

Motorized Boat Launch

Feedback was received from the public survey that boat launch improvements should be considered as a part of the TRWA Master Planning efforts. Motorized boat traffic has been limited the last couple of years with the lower water levels and the flowage generally becoming more shallow filling up with soft sediment over time. This plan includes the recommendation for dam removal. This will result in a river environment with water levels likely not suitable for larger motor boats. The decision was made not to pursue funds for motorized boat launch improvement at this time, but to focus on enhanced the parking area and shoreline access for shore fishing and kayak/canoe launching.

Hiking Trails

The public survey indicated feedback that some users of the TRWA would like to see hiking trails on the property. Through conversations with the regional wildlife biologist/property manager, it was found that there are several hunter access trails and roads (closed to public motorized vehicles) that exist on the property that may not have been signed well or mapped. These existing red-dotted areas shown on map B-2a and can be utilized for hiking during periods when hunting is not active.

Dam Management Alternatives

The Totogatic River Wildlife Area includes a state-owned dam at Wozny Road. The dam is nearing the end of useful life and recent third party inspections have indicated that the concrete dam is deteriorating and there is seepage in several areas of the adjacent earthen dike. Below is a summary of the dam management options that were not selected due to cost (long term and short term), environmental sustainability, and overall return for the investment.

Keep Current Dam

On December 7, 2012, a dam inspection was completed at the request of the Department of Natural Resources. A water resource engineer with MSA professional services completed the routine dam inspection requirements and concluded that the structure at Wozny Road is approaching the end of its useful life. The concrete structure was found to be in poor to fair condition with several areas of cracking, exposed rebar and pot holes. The earthen embankment slopes were found to be steeper than what is usually acceptable and rutting from ATV traffic adjacent to the roadway may be causing and increasing erosion issues. Stop logs and stop log gates were found to be heavily corroded and nearly rusted through at the waterline in nearly all the flow ways. Removal and replacement of the stop logs without severely damaging the guides is unlikely, making operations of the water levels control structure difficult if not impossible without immediate repairs. The degraded overall state of the existing

spillway and earthen embankment eliminates the option to legally to do nothing, as the state is owner of the dam.

Repair Dam

Repairing would include the patching of the deteriorating concrete, adding and stabilizing rebar and alterations to stop-log bays. Repairs have been estimated at approximately $500,000 to bring the dam in compliance with Wisconsin Administrative Code NR 333. These repairs provide a short-term solution that would extend the life of the structure for ten years at best. Concerns with this option are the high cost with only a short-term return of investment, and the lack of the ability to fluctuate the water levels. Although this option would prolong the life of the original structure for only up to ten years, larger scale structural maintenance and structural work would be required in the future. Long-term maintenance costs and safety risks would remain with the old dam in place. The dam repair option would not solve the underlying structural instability concerns and would not be cost effective.

Reconstruct Dam

Demolishing the existing structure and rebuilding a new dam was considered. Two types of dams could replace the existing dam. The first type is one with the ability to fluctuate water levels to control vegetation and water levels in the flowage called a lift gate style dam. The second type considered is a fixed crest dam that has a static, stable water level much like the type of dam in place currently.

A dam with operable lift gates would enable routine water level manipulation for wildlife habitat management purposes. Preliminary cost estimates for this option were approximately 1.3 million dollars to build to comply with the safety and operating requirements of Wisconsin Administrative Code NR 333 and Chapter 31 of Wisconsin State Statutes. Some potential benefits of this option included the ability to manipulate water levels for seasonal drawdowns that could create more emergent plant diversity and provide a tool for combatting invasive species. With this option, ecosystem functions and recreation opportunities would be similar to the existing flowage. Some drawbacks with this option are the overall high dam reconstruction cost, no funding available. Also, increased long term operation staffing requirements, increased maintenance costs for the dam, and continuing water quality concerns due to high sedimentation in the impoundment and low dissolved oxygen levels.

Splintered wooden stop logs on the Totogatic dam prior to drawdown in 2014, MSA, 2012.

Table 2: Dam Management Alternatives

Option	Replace dam with lift gates – allows water level manipulation	Replace dam with fixed-crest structure--water levels cannot be fluctuated.	Repair dam with concrete structure and deck patching, embankment repair, lift gate added.	Dam Removal (*option selected*)
Cost	$1,275,000	$1,232,000	$510,000	$100,000-300,000
Pros	-Vegetation could be managed more actively to diversify habitat for waterfowl.	-Limited waterfowl habitat, but habitat will exist similar to what currently exists	- Vegetation could be managed more actively to diversify habitat for waterfowl	-Water quality improvements and gain of 4 miles of the Totogatic River. -Short term cost of dam removal is the lowest cost option and long term maintenance costs are eliminated. -Low risk of fish kills -Improved habitat for small mouth bass and woodcock. -Fishing opportunities will remain similar
Cons	-Flowage will continue to build up sediment and become more shallow. Dissolved Oxygen/fish kill issues will continue and worsen over time. -Cost of new structure is high. No funds available. -Long term maintenance cost of structure.	-Will not be able to manage vegetation for better habitat. -Flowage will continue to build up sediment and become more shallow. Dissolved Oxygen/fish kill issues will continue and worsen over time. -Cost of new structure is high. No funds available. -Long term maintenance cost of structure.	-Band-Aid approach. Only extends life of dam for 10 years. -Maintenance, staffing costs continue into future, with low return. -Flowage will continue to build up sediment and become more shallow. Dissolved Oxygen/fish kill issues will continue and worsen over time.	-Waterfowl usage of the property will change -Motorized boats use (which is already limited) would be more limited.

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